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ABSTRACT

Trends affecting the future development of higher education in Poland are considered. It is projected that the demographic pool of higher education enrollment will in 1995-2000 return to a level roughly comparable with the peak pressures for college entry in the years 1971-75. It is suggested that demographic changes alone can explain but a fraction of a complex problem of social needs for further education. Enrollments may increase because of the more universal character of the future secondary school, the higher educational attainments of parents, and improvements of living standards. Additionally, the adult population may in the future matriculate to a greater extent in higher education for the purposes of lifelong education. In Poland, the role of higher education has been influenced by increased demand for higher education in the 1970s, vocational preferences, and changes toward less traditional forms of education. It is estimated that for 1976-2000 the following developments will occur: a reduction in the work-age population, a shift in the economic employment structure from agriculture to services, a stabilization of the initial level of branch-specific nonmanual jobs, and a decrease in the average annual growth rate of personnel with higher education in the public sector. It is suggested that the manpower approach is a weaker premise for higher education planning than are demographic and social forecasts, since economic growth cannot be reliably forecasted. Suggestions for higher education include the following: the three-level educational pyramid should be eliminated; direct ties should be established between the employer and higher education; and schools should have greater control over the course content as opposed to central planning. (SW)

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Division of Educational Policy and Planning

Unesco, Paris

DETERMINANTS AND OPTIONS IN THE DEVELOPMENT OF HIGHER EDUCATION IN POLAND

by Adam Józefowicz

and Jan Kluczyński

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FOREWORD

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SUMMARY

The paper presents a brief summary on discussion related to the general trends of the future development of higher education in Poland, based on an analysis of contributing factors. It may also serve indirectly as a presentation of the methodological premises and approaches of diagnoses and projections used to explain the interaction between socio-economic development and the functions performed by the educational sector. The forecasting illustrations quoted in the text/ with the exception of demographic data/ are the product of hypothetical computations of the authors and should not be considered an information, depicting the official programmes of policy with regard to the employment and education targets. Editing the material of this essay the authors benefited from a variety of documentation assembled in connection with the debate on the future model of higher education by the Institute on the Science Policy, Technological Progress and Higher Education and other centres of the Polish Academy of Sciences and institutions of higher learning. The responsibility for interpretations and conclusions drawn in this respect rests however entirely with the authors of the presentation.

R E S U M É

L'article présente un bref résumé de la discussion menée à partir d'une analyse d'éléments de base portant sur les lignes générales du développement de l'enseignement supérieur en Pologne. Il peut être considéré également comme une présentation d'esquisses méthodologiques, une façon de formuler des diagnostics et d'élaborer des projets, visant à un éclaircissement de l'interaction s'établissant entre le progrès socio-économique et les fonctions exercées par le secteur de l'éducation. Les pronostics cités dans le texte, à l'exception des données démographiques, sont des hypothèses construites sur la base de calculs faits par les auteurs et ne doivent pas être considérés en tant qu'information représentant des programmes officiels portant sur les buts de l'emploi et de l'éducation. En rédigeant le présent article, les auteurs ont pu se servir de différents matériels recueillis, à l'occasion de l'étude du futur modèle de l'enseignement supérieur, par l'Insititut de recherche sur la politique scientifique, le progrès technique et l'enseignement supérieur, par les Instituts de l'Académie polonaise des sciences et par les écoles supérieures. Cependant, l'interprétation des matériels et les conclusions qui en sont tirées n'engagent que la seule responsabilité des auteurs de l'article.

DETERMINANTS AND OPTIONS OF HIGHER EDUCATION DEVELOPMENT IN POLAND

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Chapter I : Socio-Demographic determinants of higher education development

Chapter II : Higher education development in response to manpower demand

Chapter III : Matching the demand for and the supply of manpower with higher education.

Chapter IV : Conclusions

Footnotes.

I SOCIO-DEMOGRAPHIC DETERMINANTS OF HIGHER EDUCATION DEVELOPMENT

1. Starting the discussion what determines the development of higher education with an examination of the influence exerted by socio-demographic factors we were guided by two considerations. Firstly, we express the conviction that educational tasks are of a multi-instrumental nature and cannot be reduced to the role of merely "rendering services" to occupational demand. The role of higher education is to perform certain social and cultural functions which cannot possibly be verified exclusively on the basis of an analysis of the demand for specialized personnel. Secondly, we take the view that data of demographic forecasts supply the safest assumptions to foresee changes of the "environment" in which the future university-level school will function.

2. At the beginning of 1978 the results were announced of the report conducted by experts from the Research and Forecasting Committee "Poland 2000," presenting an evaluation of the up-to-date demographic forecast till the year 2000. The results of this projection, if evaluated from the point of view of tasks facing the post-elementary education, can be summed up in the following manner. As compared with the population forecast of 1973, which served as a foundation for the Report on Education,[1§] the following amendments in plus are to be introduced regarding the relevant age groups corresponding with entry to secondary schools and institutions of higher learning. /Table 1/.

One can see, that contrary to original assumptions, the demographic pool of higher education enrollment will in

§ See footnotes at the end of the text.

Table 1

Estimated additions to population stock figures for the years 1990-2000 expressed in % of the results revealed by the current demographic forecasts against the 1973 assessment

	Year		
	1990	1995	2000
Population 15-18 years old	7	19	27
Population 19-23 years old	1	9	31

1995-2000, after the "depression" of the 1980s, return to a level roughly comparable with the peak pressure of young people seeking universitty education entry in the years 1971-1975. Keeping in mind the so far unsolved question of a transfer system linking the reformed secondary school with higher education, fluctuations of the potential pool for university enrollment, could be presented in the form of alternatives /Table 2/.

Should the characterized demographic changes be given decisive impact in shaping the future enrollment volume, i.e. under assumption of the age-participation rates being held constant at base year level, then it would become necessary to decrease the number of students by about 1/4 by the middle of the 1980s, and speed up enrollment again by one third as compared with the initial position. However, the formulation of such a directive would open the way to serious doubts. Demographic changes alone can explain but a fraction of a complex problem of social needs for further education.

There is a good reason to assume that the absolute and relative figures of potential enrollment may increase also on account of the more universal character of the future secondary school.

Also such factors as the higher educational attainment of the parents and improvement of their living standard will exert an essential influence on the dimensions of the educational aspirations of the youth. Thus the presumed gap of pressure on university-level education between the phase of decreasing numbers of the 19 years olds and the termination of the present post-elementary school system /1976-1985/ on

Table 2

Estimated increase of the population of the 18-th and 19-th years old over the years 1976-2000

Years	Estimated population change. The 1971-75 increase = 100	
	18 years old	19 years old
1976-1980	88	93
1981-1985	73	75
1986-1990	75	73
1991-1995	86	84
1996-2000	97	97

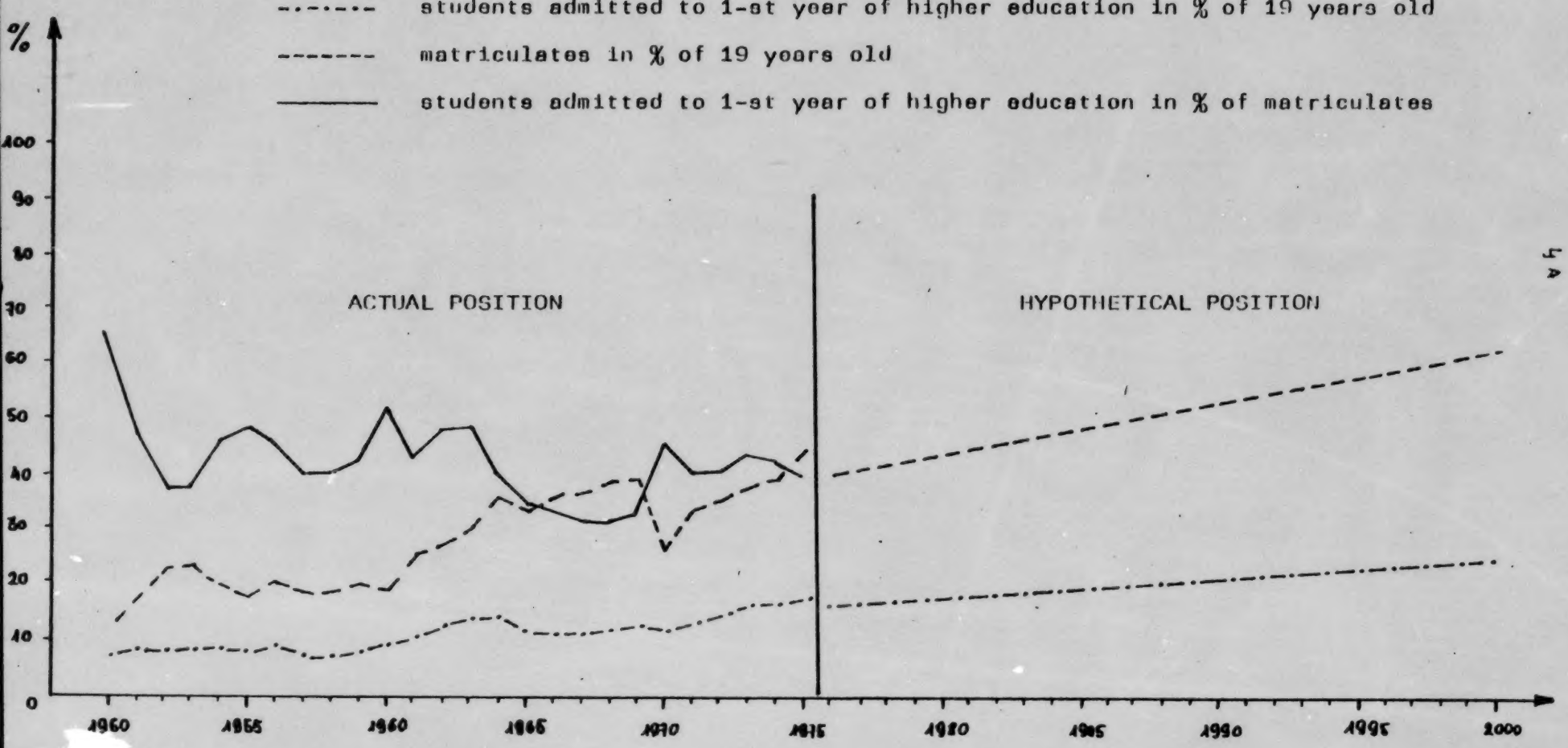
the one hand and the period of population increase combined with the effects of the universalization of the 10-year secondary school /1986-2000/ on the other hand will be much deeper than depicted by the data of population forecasts. Similarly relevant will be the results of the progressing ageing of the population, multiplying the replacement demand for personnel with higher education, leaving the ranks of manpower from 1985 onwards. To transpose the full results of demographic fluctuations at the "entry" as well as the "exit" of the working-age population and the cumulated effects of the secondary school reform on the rate of expansion of the academic teaching staff and material base of higher education would be an undesirable choice, from the point of view of the efficiency in the functioning of the education sector as well as that of the national economy. We intend to return again to this conclusion at the end of this chapter, after a more detailed discussion of elucidating factors.

3. Changes in accessibility of higher education are the outcome of the evolution of two factors, namely of the growing proportion of matriculation certificate holders among the total number of post-elementary school-leavers, in other words the degree to which full secondary school education has become universal, as well as of the transfer rate between the population of matriculation certificate holders and their enrollment in the first year of higher education. Making a retrospect assessment we find that in the years 1950-1975 the enrollment rate of the 19-year old /intramural studies/ increased 1.6 times, from 6.7% in 1950 to

10.9% in 1975. It should also be stressed that the achieved improvement in accessibility of higher education is almost completely due to the stepwise universalization aspect of the general secondary education /drawing 1/. Transfer between the secondary school system and institutions of higher learning was in the past subjected to strong periodical fluctuations reaching the level of approximately 1/3 of the total number of general secondary school leavers. As compared with highly industrialized capitalist countries Poland occupied a better position in terms of the universalization of general secondary school than in terms of higher education admission. Without attempting to clarify as to what extent the above referred developments might have been the result of deliberate policy choice and what might have otherwise been the outcome of purely accidental factors, the principle of favouring the expansion of university-level schools, through stepwise universalization of the full secondary schooling, seems to respond better to the postulate of equity of learning opportunities than liberal university admission policies, in conditions where there is not full availability of all types of secondary schools.

The upward trend of educational aspirations of youth as witnessed in the past, will subsist in the future too, due to a number of coinciding determinants exerting their influence in the same direction. First of all because those strata of the population which so far had shown less ambitious aspirations or had less practical possibilities to satisfy them and therefore had to "put them aside" for the time being, now have possibilities to reveal them. Despite

Enrollment variables



the introduction of a number of instruments assisting the opportunities of pursuing further education beyond the obligatory school, access to secondary and higher education remains in Poland strongly controlled by the socio-environmental factors. According to estimates the following proportions of young people from various strata of the population, graduating from primary schools in 1970/1971, continued further education /Table 3/.

Without assessing the scale of the shortage of "academic places" on account of existing social differentiation we nevertheless wish to draw attention to the fact, that it is the expression of insufficiently satisfied educational needs, a factor which might exert significant influence in shaping the potential pool of candidates for future higher education The successful completion of the ongoing reform of the obligatory school system, which aims at raising the universal standards of culture and cognizance of young people facing their mature life roles - will be especially stimulating in this respect. Even if the proportion of the graduates from the present post-elementary school system would in the years 1971-1985 stay on the level of one third of the relevant age-group - one certainly may expect, that in the next five-year period of 1986-1990, the social demand for further education would inevitably rise on account of the effects of the general secondary school of ten years' duration. Another factor inducing the increase of the higher education candidates pool and which will make itself felt in the 1990s, would arise on account of the need to narrow the "education gaps" between the distant generations. This need will be

Table 3

Social group composition of the secondary school leavers and the university freshmen expressed in % of the population entering elementary school system at the age of 7 of a given social group

	Percentage of children entering elementary school continuing further education by social group.				
	Total	workers	peasant	non-manual	other groups
a/ full-time secondary school leavers 1974/75	28,5	27,5	15,7	55,0	15,6
b/ admitted to Ist year of full-time higher education from among those enumerated in "a" 1975/76	7,5	5,3	2,5	21,6	3,4

brought to the fore by the generations of working age with a different educational background and dissimilar motivations as compared with their predecessors, the students attending extramural courses in the early 1950s. One is tempted to speculate that the attitudes of those new students towards further education might shift from need for "educational mobilization" towards genuine need for additional knowledge, or refreshment of professional skills. Properly introduced the means of satisfying this need may also turn out "less expensive" than was the case with the traditional forms of full time educational cycles. Thus, higher education in the 1900s will have to reckon with the phenomenon of a gradual transformation of the demographic, environmental and occupational features of the future student population, which will become much more differentiated and open to the influx of various age-groups, than is the case now.

4. Assessing the significance of the demographic determinants of the future educational policy we have so far dealt with changes taking place at "the entry" to the sector of institutions of higher learning, influenced by fluctuations of the generations of youth in the successive sub-periods of the forthcoming decades. We have further noted that the adult population, which today only in a moderate way takes advantage of the didactic services rendered by higher education, might in the future make more pronounced claim upon the use of the provisions of this sector for purposes of lifelong education. Finally attention should be drawn to the type of tasks of the academic sector, stemming from the consequences of the progressing ageing of the country's popula-

tion. First of all this is a matter of replacing the expected loss of qualified personnel and secondly of establishing the open university type courses for the population of the "third age."

Comparing the scale and factors of the turnover of the stock of the working-age population in the successive 15-year periods 1971-1985 and 1985-2000 one will notice the decreasing "net effect" of the influx of young population as generated by the demographic ageing of the population, in terms of the retirement and deaths losses. These phenomena are illustrated by the data of Table 4.

Thus, while in the years 1971-1985 for every 100 people reaching working age the effective increase was represented by over 40 people with the relevant educational level, in the coming 15 years of 1986-2000 the net increase will drop to a mere 27 per every 100. It follows from the table that in order to secure in the future the comparable increase of the qualified personnel /including those with higher education/, enrollment to post-obligatory education should relatively rise in order to compensate the rising burden of loss of already employed manpower.

The above comment can best be illustrated by the calculation which says that in order to maintain in 1996-2000 the net increase of employed university graduates of the same volume as during the years 1976-1980 /approximately 310,000 pepple/, admission of freshmen to higher education /assuming constant promotion rates/ would have to be higher by 125,000 people in 1991-1995 than was the case in 1971-1975 /about 500,000/.

Table 4

Population of working age and factors of its reproduction

	Year		
	1970	1985	2000
1. Population of working age, Stock figures, In 000's	16324	22100	24545
2. New accessions. In 000's		9170	9100
3. Separations. In 000's		5395	6655
4. Net increase. In 000's		3775	2445

In conclusion let us recall that while the demographic forecast signals the highest dynamics of population growth of retirement age /an increase by 45% in 1975-2000/, from slightly over four million to close to six million people of the oldest age-group, the manpower projections for the same time period expect a parallel drop of economic activity by more than half of the male population over 65 years old and by two thirds in the case of women who are over 60. The firmness of the results of the first and the possibility of the fulfilment of the second forecast demand: firstly, the raising of qualifications and replacement of a larger number of employees by a smaller number of more highly educated ones, secondly - the proper understanding for the needs to create and develop the educational network and participation in culture of the third-age group of the population, the natural foundation of which should be the university staff and the academic infrastructure.

5. Population determinants, the choice of the secondary school education model, finally the functions the educational system performs in the implementation of the socio-economic developmental priorities - vary markedly between countries with different political structures, a different degree of industrialisation and different heritage of national culture. Though exchange of international experience, the transfer of certain "techniques" and managerial solutions in education policy may prove useful, and at any rate worth attention, attempts to follow foreign patterns of the overall educational strategy, through exchange of international experience, have to be made with considerable

caution. Ascertaining Poland's place in the world with regard to the role of higher education, one should take into account the following distinctive marks of the country's position, limiting "the equivalency" with other countries. Firstly, the demographic pressure over the admission to institutions of higher learning was in the 1970s much more substantial in Poland than in the remaining industrialized countries of Europe and America. Secondly, the postwar development of higher education was in our country much more strongly dominated by preferences due to vocational requirements than in western countries. Finally the university sector in Western Europe has undergone many profound transformations in the direction of less traditional forms of education. The above-mentioned circumstances partly explain the reasons of slower progress as regards the enrollment rate on the level of higher education in our country; the gap between Poland and west European countries did not diminish essentially in 1960-1975. Although at the same time the country has improved its position among socialist countries in Europe /Table 5/. If one takes into account that despite the moderate progress of the general enrollment rate in Poland the proportion of specialists trained in this country for the production sphere was much higher than in the EEC countries, then it turns out that the future prospects for the relative improvement of the country's enrollment rank will very much depend on a change of profile /the Humanities/ and the forms of academic teaching /short educational cycles/.

6. Summing up the review of socio-demographic determinants of the development of higher education in Poland we reach

Table 5

Higher education students in selected countries

	Students per 10000 of population			
	1960		1975	
	Post-secondary education[3/]	universities[4/]	Post-secondary education[3/]	Universities[4/]
USA	200	175	417	314
USSR	112	54	191	103
EEC[1/]	59	40	148	113
CMEA[2/]	59	44	111	79
Poland	56	38	138	83

1/ Belgium, Denmark, France, Holland, FRG, Italy, G. Britain.

2/ Bulgaria, Czachoslovakia, Yougoslavia, GDR, Roumania, Hungary.

3/ In capitalist countries - post secondary education, in socialist countries - in mural and extra mural university educ.

4/ In capitalist countries - university education, in socialist countries - in mural university education.

the conclusion that in the light of each of the criteria discussed there is the justified need to increase the training capacity of the school network including the capital as well as staff availabilities in this sector of education in the years 1981-2000. What should the approximate scale of that expansion be? And what principle should be adopted to devise the time sequence of such expansion? It is not the task of this study to provide exact answers to both these questions. However, in order to make it easier to get a general idea as to this problem let us just mention the hypothetical results of variants of forecasts for enrollment, defining extreme solutions. The preliminary variant of stabilization of accessibility to higher education or in other words the variant following the demographic fluctuations of youth reaching matriculation age, is no alternative at all for a rational enrollment policy, because it does not take into account the needs to broaden the capacity of post-secondary schools, based on the general ten-grade school and takes it for granted that "demographic irregularity" determines the policy of expanding the school infrastructure. Variant I favouring the rising trend of the higher school accession is being considered as the "high" alternative of the purposeful increase in the capacity of education on the post-secondary school level. It provides opportunities for the satisfaction of needs stemming from the growing transfer from the obligatory reformed school to higher educational levels, and allows also for the university-level schools to accommodate the needs of the adult population within the system of lifelong education. Variant II, which will be

Table 6

Hypothetical variants of the enrollment rate trends

Years	Higher education enrollment rate 1/	
	Hypothesis I - by extrapolation of 1971-75 trend	Hypothesis II - to match the expected employment demand 2/
1971-75	14,2	14,2
1976-80	15,9	15,9
1981-85	19,0	21,3
1986-90	22,8	23,4
1991-95	27,3	22,3
1996-00	32,6	21,3

1/ in % of the 18 years old

2/ as assessed in Chapter II

dealt with in detail in the following chapter, depicts the "low" alternative of the enrollment rate, which would be necessary for higher education to conform with its professional training functions./The choice of the proper path of education development could be placed between these two variants, which would serve as extreme alternatives. To make the enrollment programme fit variant I would depend on the possibilities to strongly expand such types of education as the liberal arts /indirectly instrumental education/. From the point of view of development of the entire school system over a longer period of time one would rather favour the choice of variant II, a path which would guarantee a more rhythmical form of expansion of the educational system. In the light of international comparisons the introduction of variant I would signify an improvement of Poland's position in terms of higher education admission, while variant II would guarantee the country to hold the place occupied at present time /cf. data of Table 7/.

See Table 6.

Considering the results discussed above no more than a general approximation of the imaginable development of higher education in the broad sense we expect that a more precise quantification of these policy options be undertaken, as soon as the open problems are solved, namely the "system of transfer" from the general secondary school of ten years' duration to university education and after forecasts of enrollment for studies in 1981-2000 have been brought up-to-date on this basis.

II HIGHER EDUCATION DEVELOPMENT IN RESPONSE TO MANPOWER DEMAND

1. It is a known fact that the system of national educa-

Table 7

Forecasts of higher education enrollment

	Year		
	1975	1985	2000
Poland - students per 100 of population 20-24 years old			
hypothesis I	13,7	19,0	30,0
hypothesis II	13,7	20,0	21,5
Other regions - students per 100 of population 18-23 years old [1/]			
North America	48,1	52,3	59,4
Japan	22,4	33,9	34,0
Eastern Europe	18,0	22,8	25,8
Northern Europe	24,2	27,4	31,1
Southern Europe	29,0	36,1	40,9
Western Europe	29,2	33,6	36,7

1/ Source: UNESCO, Trends and Projections of Enrollment by Level of Education and by Age, Office of Statistics, September 1977, CSR-E-21, Table I.

tion in general and university-level schools in particular, perform various functions in social life, and therefore its progress, even if approached from the narrow point of view of quantitative development, remains a resultant of the influence of a considerable number of factors, often conflicting ones. All attempts of assessing their significance, in diagnostic studies as well as in projections, encounter a barrier of a statistical nature, which is the stronger, the more accurate the picture we wish to obtain. Such attempts contain a significant simplification, in which for operational reasons the homogeneous /though multidimensional/ social phenomena, such as the educational process, are being subjected to an artificial disaggregation of education "for one's own sake" /cultural aspirations/, education "for the profession" /qualifying production factor/ and education "for society" /civic and political tasks/. The procedure adopted in our evaluation made it necessary to accept this simplified model as an instrument for forecasting. Separate "supply projections" and "demand projections" were prepared. The former are to represent the educational needs determined by demographic changes, transformation of the education system, and the growing educational aspirations of the population. The second type of forecasts defines the needs for highly qualified manpower created by new capital investments and in order to compensate for the biological losses. While none of the proposed "autonomous" educational variants seem on its own to satisfy the requirements for a harmonious development of this sector, a joint discussion on this subject makes it possible to define the possibilities for a choice

and next to assign from among the extreme values the optimal path for development, which would avoid a one-sided approach to the function of the future institution of higher learning. It may also turn out that some of the results of conditional forecasts that are presented here may serve as "a warning", informing that the full implementation of more ambitious alternatives of the development of the university-level education calls over a longer range of time for essential changes in the prevailing system of the university sector. In accordance with its nature the study makes extensive use of illustrative numerical material. But it would be contradictory to the intention of the authors of the essay, if too much significance is attached to the results of these computations. They were used above all to identify problems /limiting factors/ connected with the future development of higher education, and only subsequently may they serve to provide approximate information about the concrete dimension and period of their appearance.

2. The first factor determining the future requirements for qualified personnel, is the overall change in the manpower stock, within which may take place an evolution of the skill mix of the employed workforce. We have already noted, that the dynamics of increase in the working age population will be slower than was the case in the past. One has further to become aware of the expected reversal in the relation between the increase of adult population and the growth of manpower. While in 1951-1975, marked by an increase in working-age population amounting to 5.4 million people - the actual increase in economically active manpower amounted to

about 5.8 million, it is to be expected that in the coming 25 years with an increase in population of working age by less than 4.5 million people - the growth of manpower will be between 2.4 - 2.8 million people. Thus along with the slowing down dynamics of working-age population stock from 136% in 1950-1975 to 122% in 1976-2000, the simultaneous decrease in the dynamics of manpower increment resources, will find its expression respectively in: 147% for 1950-1975 and 113% for 1976-2000. This slowing down, let us add, shows tendencies of acceleration with the passage of time and brings about a drop in growth of manpower as compared with corresponding increase in working-age population from 78 people per 100 in 1976-1980 to a mere 44 per one hundred in 1996-2000. The above-mentioned forecast[3] of manpower resources thus assumes a radical drop in the economic activity of the population, above all at the terminal segments of the working-age, reckoning with the expected influence of the following factors: a. increased enrollment at the post-secondary school level, b. the universalization of the old-age pensions provisions for the entire population, c. a decrease in the share of rural population, d. the effects of subsidising the budgets of families with many children. Accepting as a working hypothesis the assumptions of the above-mentioned forecast for further assessments of qualified manpower demand, we would at the same time like to make the following comment. Firstly, we accept these findings as an indication that equivalence between social and professional demand for higher education will in the future markedly decrease in comparison with the experience of the preceding

years. The degree at which future educational expansion could be explained on account of changes in the total volume of employment will be smaller. Secondly, in contradistinction to the relatively precise nature of demographic forecasts defining the change of future manpower resources, the predictions of increase or decrease in the particular age-sex specific labour force participation rates are naturally more arbitrary and subject to suggestions stemming from short-term preferences of the employment policy. The declining tendency of economic activity may be considered a property accompanying progress in the socio-economic development of the country only to such an extent and within such a time perspective, at which it helps to even out social opportunities and to provide social security to all strata of the population. As soon as the effective and equal accessibility, in the social and spatial sense, to the reformed secondary school is being achieved, and the entire population enjoys the benefits of the social welfare system regarding old-age pensions, the further progress of education at the post-secondary school level need automatically lead to the relative growth of the economically inactive population.

3. The absorptiveness of the national economy as regards qualified personnel is strongly differentiated, depending on the sector of employment. It is therefore natural that assessments determining the changes of the future volume of employment will interest us not only in terms of growth of manpower resources in general, but also as to the dimensions of increase of manpower outside individual small-

scale agriculture or in the socialized sector.[4]

A fundamental element of the "mobile" forecasts of the manpower growth, side by side with updating the demographic and labour force participation forecasts, is the evaluation of the transfer of manpower from agriculture. As a rule it is approached by taking into account one of two methods. The first used to consider the level of agricultural employment as an autonomous factor, derivative of the postulated programme and structure of production as well as the technical and organizational means allocated to achieve this aim. The "surplus" of manpower that remains after the satisfaction of the needs defined in this manner can be utilized in other fields. The second method is represented by forecasts which maintains, that the intensity of the outflow of agricultural population /above all from small-scale peasant farms/, is controlled by strength of the "pull" of the non-agricultural employment incentives, creating job opportunities for rural manpower. The mechanization program in agriculture plays here the role of an outcome of the assessment of the growth-ceiling of labour productivity in non-agricultural sectors, partly depending also on the variability of the costs to be incurred on the transfer of migrants to non-agricultural work. Establishing our own hypothesis as to changes in the employment structure we assumed firstly that the propensity towards emigration from agriculture will gain in strength along with the decrease in the "natural" resources of manpower growth in general, and secondly, that it will be difficult to carry out the production tasks of industry and building exclusively by means of higher labour productivity

and without the influx of rural manpower.

On the basis of the above assumptions the assessments were made as to the employment composition by various branches and sectors for the years 1980–2000, as presented in Table 8. The proportion of agricultural employment estimated for the year of 2000 is higher or equal to an analogical proportion noted in case of all the industrialized countries of Western and Northern Europe in 1960, but also higher or close to a similar proportion noted in 1975 in the German Democratic Republic, Czechoslovakia, Hungary, Italy and Spain. The rate of transformations of the employment composition in Poland assumed in our exercise should be therefore considered as a distinctly moderated variant.

The assessments that have been made make it possible to compare the past and future trends regarding the overall growth of manpower stock, the sources from which it comes, as well as their ultimate allocation. As was to be expected, the annual increase in employment in the sectors with a high demand for qualified labour, i.e. outside of agriculture, reveals a much weaker time differentiation than would result from evaluations depicting solely demographic changes. On comparison with the period of 1950–1975 the internal composition of manpower growth sources is undergoing significant transformations /Table 9/. Since 50–60% of the forecasted increase in employment outside agriculture, is "subsidized" by transfer of agricultural manpower, one may suspect that time fluctuations over the volume of the demand for qualified manpower may turn out much stronger than was the case in the past, when the total increase in non-agricultural employment was controlled predominantly by demographic changes.

Table 8

Employment composition of labour force

	Actual position			Hypothetical trend				
	1950	1960	1975	1980	1985	1990	1995	2000
I Agriculture and forestry	57	50	36	35	31	25	22	18
II Industry and construction	23	29	36	36	36	37	37	37
III Services	20	21	28	29	33	37	41	45

Table 9

Non-agricultural manpower formation and redistribution /in %/

Years	Non-agricultural manpower increase due to		Non-agricultural manpower increase allocation sector	
	population growth[1/]	emigration from land	industry and construction	services
1950-1975 Actual position	92	8	60	40
1976-1990 Expected	51	49	24	76
1991-2000 Expected	38	62	15	85

1/ changes in the stock figures of the population of working age and of the level of economic participation

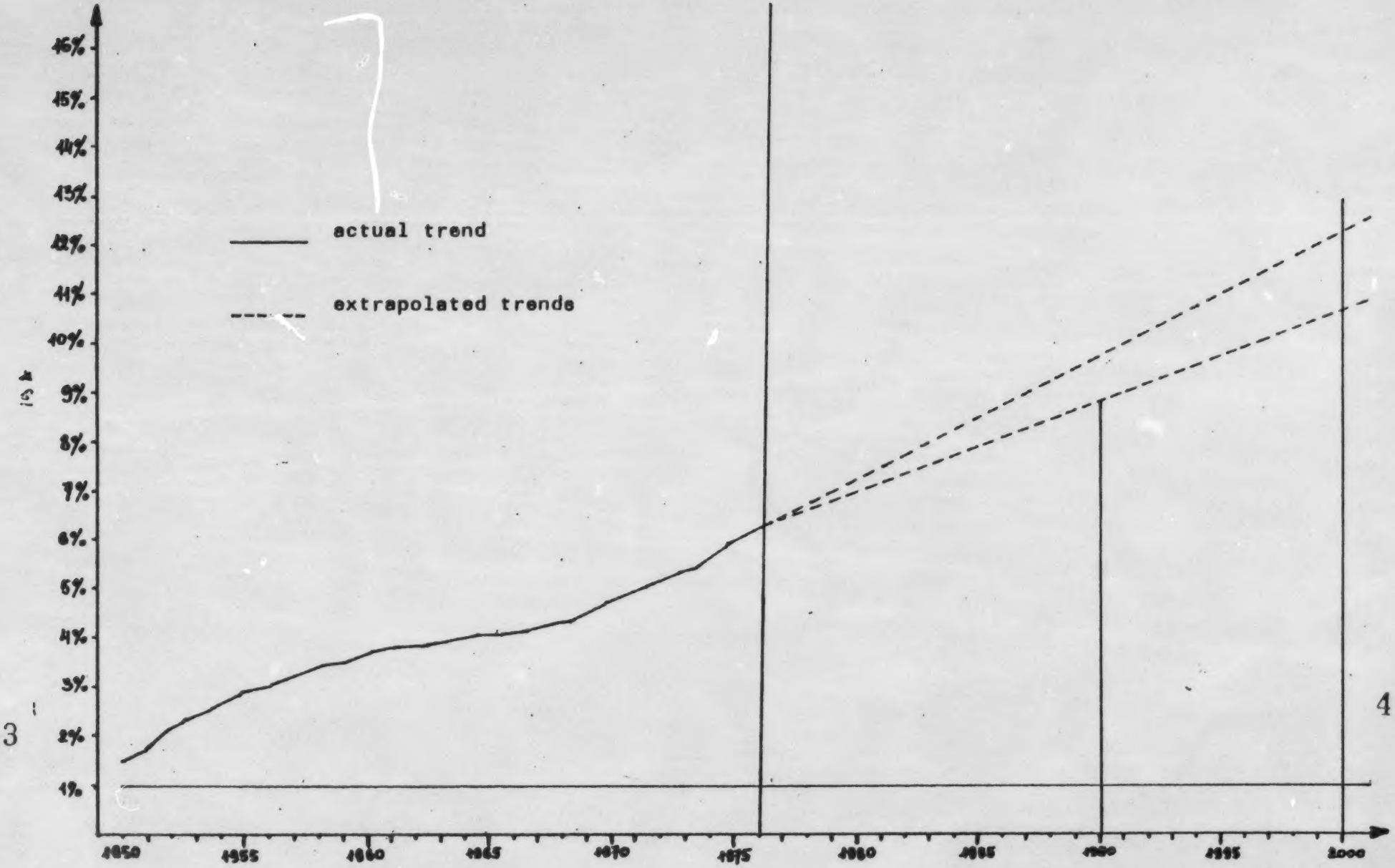
Lastly - in 1981-2000 a distinct turning point is to be expected in the allocation of the manpower increase between the sphere of material production and the services. The greater significance of sector III in the absorption of the increase of non-agricultural manpower from approximately 40% in 1950-1975 to 75-85% in 1976-2000 is an expression of the natural tendency towards changes in the employment structure in the advanced stage of the industrialization of the country. Since the service sector absorbs 2.3 times more of the personnel with higher education /and in the case of socialized services 2.6 times/ than sector II - it is to be expected that the trend of changes should determine the relative increase in demand for graduates of higher schools due to the evolution of the employment structure.

Commenting on the results of the obtained hypotheses of the employment structure we consider that in conditions where deviations from the postulated developmental path cannot be avoided - the probability of global and occupational indentification between nominal and actual demand for qualified manpower decreases the more this demand becomes dependent on other than demographic sources and on the expansion of employment in sectors of the secondary division of the national income /i.e. outside of manufacturing, construction and the food production and processing/. Bringing observations, conducted so far, to their logical conclusion it should be stated that in conditions outlined the future educational policy should aim at securing greater autonomy and freedom to adopt its expansion to developmental needs.

4. With the given manpower reserves and an indicated trend

of changes in the employment composition the demand for qualified manpower would depend on the future absorptive power of qualified personnel in the various branches and sectors of material production and the services. Our own and international experience has shown that it is precisely the variability of this third factor which plays a decisive role in shaping the ultimate employment demand for graduates of schools. Close to 870,000 graduates with university diplomas entered the labour market in the years 1946-1975, and the overwhelming majority of them started professional work. Out of a total of close to 6.9 million new work places created in 1951-1975 in the socialized economy - 630,000, i.e. over 9% were jobs filled by personnel with higher education. The proportion of people employed in the socialized sector with university diplomas increased in those 25 years by more than four times and amounted in 1976 to close to 7% /see graph 2/. The permanent shortage of qualified personnel of the early 1950s has been overcome and the national balance of demand and supply for qualified manpower begins to approach the state of overall equilibrium. In the mid-1970s Poland began to take a leading place among European socialist countries as regards saturation of the various sectors of socialized economy with personnel with higher education. Let us now discuss some details which make up this general picture. It will be quite instructive if we stress which factors contributed in the statistical sense, to the increase in the global employment figures of personnel with higher education and what relative role they played in this change. Using a scale of 10 branches of production and services, for which it was

Proportion of employed manpower with higher education completed /public sector/



possible to supply comparative data on employment in the socialized sector in the years 1956-1976, it was found that the over-all increase in employment of personnel with university diplomas in 1956-1976 /close to 550,000 people/ could be explained:

a. by 32% - due to the increase of the general volume of employment,
b. by a mere 3% - due to the changes in employment composition to the advantage of branches with greater absorptive capacity for qualified manpower,
c. by as much as 65% - due to the expansion of the initial pattern of "absorptive capacity" for qualified personnel in the various sectors which are the subject of comparison

The processes of these changes in 1956-1976 are illustrated by data given in Table 10.

The results of comparisons point to the process of more pronounced growth of the educational attainment level of employees in the sector of production than in the case of the services and to a logical tendency towards gradual equalizing of qualification standards of manpower as a whole. This tendency should be taken into account in educational forecasts. On examination of subsidiary information from local and international statistical sources one is tempted to suggest the following explanation of the general mechanism of this process. In all the industrialized countries which have overcome the initial barrier in adequate provision of elementary education /with a constantly prolonged educational cycle/ the parallel appearance of two phenomena can be noticed. The first expresses the results of technological and managerial progress in the form of a nominal change in manpower demand

Table 10

Higher education graduates employed in public sector per 10 000 employees

Economic branch	1956	1976	1976/1956
Total			
a/ crude index	323	649	201
b/ index eliminating the impact of change in employment composition	338	649	192
Industry	143	318	222
Agriculture	49	452	922
Forestry	277	344	124
Construction	404	671	166
Transport	55	199	362
Commerce	95	320	337
Housing and communal services	72	409	568
Health, education and culture	1398	2082	149
Public administration	1063	1879	177
Other services	.	1139	.
Sector I /agricultural, forestry/	73	439	601
Sector II /industry, construction/	197	391	198
Sector III /services/	566	814	144

composition as structured by vacancies for non-manual and manual workers.[5] The second trend, of much more dynamic nature, makes itself felt in the form of a growth of the actual qualification level of the personnel in each sub-category of work performed with stronger pace the lower the initial educational attainment of the given occupational or sectorial group which underwent such changes. There is no way to define unequivocally to what extent a combination of these two overlapping trends is an expression - in the first case in a reduced manner and in the second case in an exaggerated manner - of the real demand for rising the quality of a given job content and competence, as caused by changes in the methods of production and consumption as well as the administrative and managerial system. At any rate it remains a fact, that the above-mentioned tendencies seem to be of a universal nature and contemporary society, in recognition of the growing significance of non-vocational, general learning functions of education, accepts in various ways processes, where qualifications formed under the influence of the strategy of egalitarian education policies "outdistance" the limits which might be otherwise imposed by the employment demand considerations alone. Here are a few examples:

During the years 1956-1975, for which actual employment increase of personnel with higher education amounted to 200% the number of non-manual jobs open to graduates of secondary and university-level schools increased from 2.1 to 4.1 million, i.e. close to the rate of growth for the total manpower employed in public sector, yielding as a result an increase in nominal absorptive capacity for personnel with higher education of no more than 5%. /See Table 11/

Table 11

Proportion of non-manual workers per 1000 employees in public sector

Economic branch	1956	1975	1975/1956
Total	341	358	105
Industry	179	196	109
Construction	264	288	109
Agriculture	163	270	165
Forestry	329	344	105
Transport	311	293	93
Commerce	635	613	97
Housing and communal services	263	300	114
Health, education, culture	690	702	102
Public administration	911	921	101

Just as in the case of the overall changes in saturation with personnel with higher education diploma the increments of nominal absorptive capacity for university graduates proceeded more rapidly in sector I than in the services. It is not difficult to draw the conclusion that in the above circumstances the actual growth of qualified personnel must have been intermediated to a great extent by the process of upgrading of the initial requirements of the job quality. Such conclusion finds its confirmation on examination of available data:

Proportion of employed with post-elementary education completed per 1000 in Poland — Table 12a

Job category	1968	1973	1973/1968 in %
All categories	407	471	116
Manual workers	194	274	141
Non-manual workers	819	843	103

Statistical source: Statistical Yearbook, 1978, Warsaw

Table 12b

Proportion of employed with post-elementary education completed per 1000 in USSR.

Job category	1939	1959	1977
All categories	123	433	780
Manual workers	44	322	700
Non-manual workers	532	892	970

Statistical source: SSSR v cifrach, CSU, Moskva 1978, p.77

On the assumption that the above processes will take place also in the future, it is possible to assess the marginal variants of the expected expansion of the "nominal" and "effective" demand for personnel with higher education within

"constraints" of manpower volume and composition change, discussed beforehand.

Taking as a starting point the conservative assumption of a stabilization of the branch-specific proportion of non-manual jobs at the level registered for 1975 - we arrive at, in conditions of the assumed evolution of the employment composition in the public sector, the following variant of changes in nominal demand for qualified manpower with secondary and higher professional education:

Table 13

	1975	1980	1985	1990	1995	2000
In percentages of people employed	35.8	36.9	36.7	37.5	38.5	39.4

Taking into account the actual qualifications of people employed in non-manual jobs, which according to the 1973 census were as follows: 16.7% with higher education, 54% with secondary school education and 29.3% with a lower educational level, we further assume that by the year 2000 the effective structure of qualifications of this category of employees might change as follows: a. the proportion of employees with a lower than secondary school education level may drop to 6-10%, b. the proportion of employees with higher education should double, c. the proportion of employees with full secondary school education should remain unchanged or increase slightly. Such hypothesis would amount to the implication if the proportion between personnel with higher and secondary education /1.0:3.6/ would remain stable, that the secondary school leavers in 1980-2000 would mainly find employment as skilled

operatives.

Similar results are obtained by application of extrapolation techniques with regard to the past trends of the educational attainment of manpower in the public section marked in "path A" by a linear trend of changes for the years 1960-1975 /see graph 2/ and in "path B" by the annual compound rate of growth for the years 1956-1976, adjusted for the changes in the employment structure /see Table 10/.

Commenting on the results of the above forecasts it shoul be kept in mind that they are the product of the following assumptions related to the years 1976-2000.

- slowing down in the dynamics of the increase in working-age population stock;
- tendency towards slowing down of the effective growth of available manpower, due to expected ageing of the population;
- the moderate assumption as to the future shifts in the economic employment structure /between agriculture and the services/;
- the stabilization of the initial level of branch-specific proportions of non-manual jobs;
- decrease in the average annual growth rate of proportion of personnel with higher education in the public sector from 3.3% in 1956-1976 to 2.7% in 1976-2000.

The results of the forecast presented in Table 14 correspond in the following way with information about the similar proportions of manpower qualifications in other countries /Table 15/.

Table 14

Hypothetical trends of employment demand for higher education graduates in public sector for the years 1980-2000 /in % of overall employment/

Year	Alternative A	Alternative B
1980	7,2	7,6
1985	8,6	8,9
1990	9,6	10,5
1995	10,6	12,3
2000	11,6	14,5

Table 15 -

Employment of higher education graduates in selected countries

/in % of overall employment/

Year	Poland		GDR	Czechoslo-vakia	USA
	Total labour force	Employees in public sector			
1975	4	6	7	5	14,1
1990	8	11	12	8	.
2000	11	13	.	9,5-11,0	.

III Matching the Demand for and the Supply of Manpower with Higher Education

I. In conclusion of what was said so far on the subject of the future developmental trend of higher education from the point of view of the social and professional functions it performs, we wish to draw attention to the matter of "parallelism" in the interaction of cultural and economic incentives, stimulating the quantitative growth of higher education. During a considerable period of time, corresponding with the first stage of the industrialization of the country the development of the system of university-level schools was prompted by harmoniously convergent interests of overcoming the shortage of skilled manpower and the satisfaction of the educational aspirations of the population. On account of the relatively small number of matriculates qualified for university admission, social pressure for higher education was at that time relatively insignificant. In turn the rapid rate of increase in the employment volume in the public sector, in conditions of a dramatic shortage of skilled personnel, caused a strong demand for the expansion of post-elementary schooling. Apart from short-term fluctuations, the frequency curve depicting the outturn of qualified manpower from secondary and higher education was for the years 1950-1966 as a rule below the curve of overall employment demand. Since that time onwards the situation underwent radical change. The cumulative effect of more or less systematic expansion of the educational potential made itself felt in two ways. First of all the post-elementary school level of the educational system began to gather momentum. The premises controlling its development, despite economic constraints,

are now more frequently formulated in categories of social and cultural desiderata than immediate vocational needs. Increasingly large circles of the population cherish aspirations to continue higher education, the actual and potential social pressure in favour of university admission increases. Temporarily, in the decade of the 1970 the large numbers from the post-war birth boom became the main "carrier force" of this pressure. On the other hand, fluctuations in employment demand, though not weaker than in the past, give nevertheless way to/a more pronounced upward trend of a supply of school graduates. Beginning with 1975 the total supply of secondary and university-level school graduates surpasses the net annual growth of employment, and such position will prevail in the coming years, if it will not even become intensified.

How should such a situation be appraised and what are its implications for the future social and economic policy, First of all we think that the discussed trend is no anomaly, but the natural outcome of socio-economic development. Quite logically, the policy of the stepwise universalization of the successive educational levels is bound, with the passage of time, to lead to a situation, in which the supply of qualified manpower from the post-obligatory school will be sufficiently large, to transform the educational attainment of labour force, not only within limits of newly created jobs, but also in the vast area of "old" jobs, already functioning. To some extent this process of the transformation of the educational structure of the employed is being accomplished in the form of a "physical" exchange between fresh school

leavers and the retiring people /with inferior qualifications/ or in the form of compensation for natural loss of skilled personnel. But there is no doubt, that in a more distant perspective - especially when the first university graduates, based on the ten-year secondary school, will join the labour force - the aggregate demand for skilled manpower in terms of new vacancies and compensation for biological loss, may turn out to be "regularly" below the level of educational outturn. In that time perspective, the already indicated problem of "upgrading" the quality content of the job requirements - to satisfy the individual's needs for creative employment within constraints of social division of work - would attain new dimensions.

The inertia of traditional hierarchy of jobs: worker /operator/ ≠ technician - manager, additionally supported by a long duration of people's professional career /40-45 years/ may in the end turn out more resistant than the transformations of the"educational standards" of society. With the passage of time the traditional equivalencies between the various ranks of the educational vis a vis professional ladder will lose their significance. That precisely is the reason why attempting to find the rational options for the future educational doctrine, we choose to look at the subject from the instrumental point of view as well as from that of the non-instrumental functions of the school network. It may also soon turn out necessary to change the stereotypes in policy evalution and decision making in the sphere of the employment action and education. The rigid control of long-

term and immediate preferences of the employment policy, over the directions and adjustment measures in enrollment to post-elementary schools will gradually have to give way to a principle of partnership matching of the parallel interests of the full and rational employment of highly skilled manpower.

2. The results of the research conducted as well as the information available from statistical registration point out to symptoms of ineffective use made of skilled manpower.[6] We shall devote our attention to this important and simultaneously autonomous problem, evaluating its possible implications for the strategy of educational development. Among the most typical forms of the ineffective employment one can indicate: discordance between the actual and the required educational attainment; mismatch between the specialization "received" and "performed"; inadequate proportion of working time devoted to practical utilisation of the skills acquired; the posts and operations are sporadically created where qualification content seem to be of insubstantial nature; there is disharmony in the spatial distribution regarding the demand for and supply of qualified manpower. Attempts made to assess particular contributing factors determining these phenomena as well as to present the results of evaluation in quantitative terms - have so far yielded no satisfactory results. Firstly, it has been learned that we deal here to a considerable extent with the by-product of mechanisms of the functioning of the national economy, including the employment policy and the subsidizing of education. In other words, more effective models of qualified manpower employment can only be introduced on a "part and parcel" basis within the overall

scheme of managerial reform. Secondly, the discordance between demand for and supply of qualified manpower regarding the educational level, professional matching or the location of the jobs is to some extent /which is still a subject of controversy/ an inevitable and harmless phenomenon. The economy has for at least 20-25 years been able to manage with similar discrepancy in the form of shortage of qualified manpower and now enters the stage, when symptoms of maladjustment tend to change in direction of overabundance. No doubt, for the benefit of a rational economic policy /the costs of education and wages of specialists/ and the social policy /to reconcile aspirations with satisfaction derived from the work performed/ it is necessary to control the scale of this discrepancy. The effective introduction of a policy of controlled harmonization of the social and economic interests of educational development requires: Firstly - the necessity of marked improvement of diagnostic material so that one may judge with more confidence to what extent the disproportions signalled by so far inadequate information media reveal in fact the genuine features and correct dimensions of an economic wastefulness and social frustration, caused by the employment mismatch. The present state of knowledge is based on fragmentary cognitive material which leaves too many possibilities for arbitrary interpretation.

Secondly - a system approach to the composition of the remedy programme. In isolation none of the sectors of management /economic planning, labour or education/ is in a position to successfully handle the requirements of rational employment of qualified manpower without the combined cooperа-

tion of the remaining sectors. The correct management of the human factor is a task going beyond departmental competencies, and therefore the ways and means of solving it have to be undertaken on the macro-social level of management.

Thirdly - in making a choice as to remedial measures, preference should be given to qualitative/system-oriented/ instruments for the control of convergence between the employment and education policy, deleting the improvement of administrative adjustment measures, to the role of auxiliary media.

3. One may already sketch some essential dilemmas of the choice of such a policy. The first problem, is that of "vertical" employment substitution. The majority of the "micro-economic" reports on utilization of qualified manpower maintain that shortage of qualified manpower is a lesser - ser evil than its over-abundance. The genuine shortage of specialists in any field, with the help of a mechanism of income incentives - brings about the necessary influx of skilled personnel from other areas or causes the upgrading of qualifications of local workforce through adult education media. An instant matching of the required manpower is thus secured, without the risk of missing with a future job offer. Such argument may lead - on the basis of an erroneous analogy - to the formulation of a general doctrine supporting educational development "below" the ceiling of the "professional market" requirements. Processes enforced by technological and managerial development would in that case "spontaneously" control by the world of work a scale of gradual raising of the formal and actual level of qualifications of the employed labour with the help of extramural training.

Changes in the population's educational attainment - above the obligatory level with which the youth would start work in general - would thus take place in a manner, completely dependent on the needs of the employment sector. This would seemingly remove the roots of any frustration due to employment below the level of acquired qualifications while higher education would become reduced to the role of training/a professional élite. The above argument is questioned on many grounds and for very good reasons. Firstly - it is being pointed out that it attempts to generalize the properties of the manpower matching processes in manufacturing industry, over the remaining sectors of the economy and services where similar mechanisms are either non-existent or function with severe constraints /the education system, the health service, science, transport, etc./. Secondly - the discussed model can be applied in an economy which has diffused a solid foundation of elementary general and vocational qualifications /skilled worker with secondary school diploma/ and on this foundation one may expect sufficiently stimulated motivations and possibilities for permanent skill and job promotion, without support of/an intramural post-obligatory school system. We are yet to achieve such position only in the future.

Thirdly - arguments are put forth that cultural and professional components of education alike play a significant role in stimulating increase of creative effort and therefore should be introduced into the social system in a manner surpassing the conservatively assessed employers' needs, with the reservation, that the system of remuneration and

promotion should favour innovations in the use of such qualifications. One should look for a way out of the controversy, outlined here in an exaggerated manner, in two general directions of procedures.

Firstly - the development of higher education should take place in a manner that would allow for a marginal "safety valve" against the strict demand for labour. This way of planning "ahead" of the immediate requirements of the economy need however not necessarily adopt a quantitative form /students → employment/, but should above all find its expression in the expansion of teaching personnel and the material basis as well as the research availability, capable, if necessary, of restructuring of medium-term educational policy, of changing curricula, learning profiles and teaching techniques. In other words: the development of the scientific and research as well as social facilities of institutions of higher learning should progress more rapidly than required from matching the present enrollment with future employment demand.7) Secondly in order to meet halfway strongly fluctuating demand for "interventional" education on the post-secondary school level - the future university should possess a much richer gamut of educational forms and courses, affiliated to strong academic centres. A university-level school should not hand over to large economic organizations the patronage over the formation of standards for science and professional qualifications. But it may take advantage of the means and equipment of such organizations for the perfection and dissemination of these standards for the benefit of the entire economy and culture.

The second problem to which attention is drawn by the present state of utilization of professional qualifications - is that of "horizontal" substitution and harmony of supply and demand for graduates in various occupational categories. A more exact analysis of Polish and international statistical data reveals, that this problem goes beyond the frames of mere broadening of the profile of professional training and will require a gradual reorientation of the course composition of academic teaching in the country. The argument can be highlighted with the help of relevant data.

Taking into account the limited coursewise equivalence of academic studies on comparisons of various countries and specifically between the systems of higher education in East and West European countries, we decided to make use of the aggregated data as shown in Table 16.

Considering the frequency of qualified manpower accessions with the graduates professionally oriented towards the sector of material production, Poland's location seems to be close to the norm and structure, similar to that of the USSR and the USA. However, the position occupied by Poland as regards influx of qualified manpower to serve social needs, seems too far from the standards of all the countries under consideration. One is bound to arrive at the similar conclusion on examination of the occupational composition of the presently employed stock of university graduates as against the expected and stipulated proportions of the qualified personnel from the long-term point of view. /cf. Table 17/.

The development of post-secondary education in the 1990s, especially to the extent in which it will be adjusted to con-

Table 16

Higher education school leavers in 1975 per 100 000 of economically active population

Country	Graduates from faculties of technology, agriculture and natural sciences	Graduates from faculties of medicine and pharmacy	Graduates from other faculties /arts, humanities, social sciences/
USSR	289	44	246
USA	221	63	1124
CMEA	169	29	198
Poland	162	19	167
EEC	113	48	271

Table 17

Occupational composition of higher education graduates employment in Poland

Occupational group	Actual position 1973	Expected position - 1985	Hypothetical position - 2000
Technology	36	33	25
Agriculture	9	8	8
Natural sciences	9	9	12
Medicine	13	9	11
Arts and humanities	33	41	43

form with the educational aspirations of the population, should take into account the preferences of education, aimed at general cultural goals.

The third and the last problem facing the future educational strategy is the need for a parallel change in the anachronistic stereotypes of the visage of the university graduate as traditionally perceived by the student population and the world of work. It will be a joint task of the two to bring about a reorientation of the policy of employment and education, in order gradually to change the mentality of the employers and the student youth regarding the approach to their rights and privileges, offered by a university graduation diploma. The acceptance of the consistent principle of moral and material rewards open to all contributing quality and inventiveness in work, irrespectively of their "certificated" qualifications, should assist the youth in rationalizing their educational and employment options and motivations.

IV CONCLUSIONS

1, Criteria of assessments and their limitations

The development and functionning of higher education is influenced by a variety of factors. Some of them are of an internal nature, others reflect the external environment. A comprehensive evaluation of the need for and directions of the reform of higher education should be therefore conducted on the basis of a critical assessment of the functioning of institutions of higher learning /internal determinants/ as well as on an analysis of the expected external changes of the "environment" in which the future university school may

act. This study concentrates only on the second type of argument, and the conclusions it offers give merely an approximate evaluation of the needs, trends and instruments for the carrying out of such a reform.

Since the assessment of the education sector functioning, including university education, reveals in professional literature different comments and criteria of judgement it appears necessary to explain in further details the author's approach to the subject. Should one opt to interpret the concept of external determinants as economic constraints hampering the freedom of expansion of the given type of education during a definite period of time, then the very essence of the problem could be reduced to the evaluation of the developmental options for higher education /various configurations of the enrollment, course composition, duration of studies and the forms of teaching/, which are in accordance with the available funds earmarked for this purpose by the planning authority. Such an approach might prove more or less instrumental for implementation within medium-term planning, with clearly defined directives, regarding the proportions and forms of the distribution of the national income. In case of long-term forecasts /and we are dealing here precisely with this type of forecasts/ there is usually lack of any substantial data or policy background to judge the direction and range of the educational progress, if perceived solely as a response to the funds availability. A little more ambitious although similar approach attempts so far exclusively in theoretical terms to ascertain the future development of the school network, by application of the cost-

benefit type of analysis. Discarding quite correctly the simplistic approach assuming the education expenditure to represent the "benefits foregone" only, some efforts are made, though for the time being without reasonable success, to define the social or economic value of return, subordinated to various options of educational development. In the case under discussion the application of the above approach would amount to the optimal variant of matching the volume of educational outlays with the social or economic benefits secured. The practical application of such an analysis still encounters severe obstacles, arising on account of lack of reliable criteria of evaluating the social and personal benefits of education, especially in monetary terms.

In the above circumstances the assessment of the external factors controlling the development of higher education could be conducted in two ways: a. in the form of an identification of determining factors, according to their significance and expected influence on adjustment processes in higher education, b. a quantitative assessment of the dynamics of some variables, explaining the development of higher education.

2. Demographic changes

It is expected, that like over the past thirty years the demographic changes will until the end of the century proceed in an arythmical manner: periods of low and high population pressures will alternate, contracting and expanding the potential pool of the future university candidates. The current decade of the 1970s, during which we notice the peak in supply of young people entering employment or post-secondary

education /approximately 660,000 youth annually/, will be followed by a decade of "depression" in the 1980s, when the age corresponding the annual increase in population will drop to about 520,000 people, in order to rise again in 1991-2000 to approximately 630,000. From the point of view of the premises of the future development of higher education, we may therefore make two comments. Firstly, while the secondary school reform /1978-1988/ will proceed in relatively favourable conditions of the low population pressure, the reform of higher education, at any rate its quantitative expansion, would have to start during a period marked by rising numbers of the youth reaching university enrollment age. Secondly - the more numerous population of the 1990s will at the same time be the carrier of a higher propensity towards further education on account of the effects of the universalization of secondary school education.

However, one should not limit the characteristic outlines of demographic changes to information about the "entry" into the ranks of the mature population. The expected changes in domestic available labour resources will take shape under the not less significant influence of "exit" processes of the population of production age, due to demographic ageing. The gradual decline of the net increase in population of production age takes place under the influence of a continuous intensification of processes of retirement and biological losses.

Under the influence of the above recapitulated demographic processes the future changes in global employment will take place in the form of:

a. a more intensive "turnover" between generations forming the labour force,

b. a decline of the absolute of net employment increase. Thes changes as such need not necessarily mean a parametrically contracting demand for qualified manpower growth, including personnel with higher education. Graduates of vocational schools should not only fill the new vacancies but also take over the jobs vacated by the retiring population. In these circumstances it would be more pertinent to suggest, that a the changing employment position may exert pressure, demanding a shortening of the cumulative time devoted by the young population to the full cycle of inter-mural post-secondary education. b. for economic and social considerations alike the spontaneous processes of loosing manpower due to retirement processes may call for controlling media, with the help of additional training and vocational requalification.

3. Employment structure and demand for qualified manpower

Contrary to what might seem otherwise obvious - the manpower approach continues to make a weaker premise for the diagnosing of future determinants of the development of higher education than demographic and social forecasts. This is due to two fundamental reasons. Firstly, because the economi growth itself, if examined in longer development cycles, is never ideally rhythmical and proceeds in the form of acceleration and a slowing down as well as changes of initially established priorities for the creation and distribution of the national income. The directions, the intensity and the consequences of such "deviations" could not be guessed with reliability in forecasting and planning procedures. It is

common experience that such situations occured frequently in the past and it seems possible to ignore the probability of their repetition in the future.

The second reason of the limited reliability of manpower approach as the singular procedure in planning higher education development, is of a methodological nature. The usual procedure of manpower planning amounts to a rather simulating transformation of the future volume and job composition into the forecast into the forecast of a number of workers with a given type of qualifications. The obvious weakness of such approach stems from the identification of the number and composition of assessed working tasks with the number and composition of the human workforce to "fit in" with the above requirements. In real life there always was and will operate in the future the phenomenon of simultaneous or alternate performing of various tasks by the individual worker or working team, making the whole concept of "equivalence" between the working task component and human working capacity component - a very abstract instrument of judgement. One may therefore argue, that the volume of demand for qualified manpower may differ from the number of jobs, assessed according to labour intensity standards. And the range of knowledge and skills of employed persons, may surpass the scope of job requirements fixed in accordance with the qualifications norms, for first employment.

It seems also clear that permanent changes in the character and content of work demand thorough and more general learning during the process of post-secondary education with further opportunities open for gradual specialization through on the job training or adult education, adjusted for the specific aspects of the relevant job, employemnt promotion, the

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fic aspects of the relevant job, employment promotion, the personal predispositions of the graduate and his adult life aspirations.

4. The demand for education and its consequences

Whatever yet might be suggested in terms of changing the content and methods of learning processes on the basis of a critical analysis of the"internal" determinants of the functioning of higher education - the fundamental comment offered with regard to the reform of this type of education, due to above discussed "external" criteria, points out the necessity of increasing the degree of self-control of higher education in relation to other sectors of the national economy and culture with which it cooperates. This could mean that the following trends of gradual adjustment of higher education to the changing "environment" be considered;

a. on the stepwise elimination of the "three-level" educatior al pyramid and the gradual universalization of the obligatory secondary school one should accept the principle that university education is the successive, and universally accessible link for a continuation of multistage education of the adult population.

Planning should make provisions not only for youth who within the normal course of educational processes and the universal secondary school should find their way into the institution of higher learning as a result of talent and industriousness - but also for those categories of the adult population, for whom the university diploma might become mandatory for reasons of employment promotion. It should also allow for the access of those, who on account of the persona

interests, might wish to increase the knowledge, irrespectively of professional considerations and are in a position to cope with the requirements of a university-level school.

The above concept of non-traditional demand for post-secondary education covers the different categories of clientele, performing variety of social functions /remunerative employment, guardianship duties, household chores, daytime studies/ and belonging to various age groups. On account of this the "paths" of accession, training cycles as well as "forms of separation" from the education system have to become much more diversified so that they may fit better the typical demands and motivations of the various categories of candidates for higher studies;

b. Academic education would comprise two parallel "learning streams." The first - a selective enrollment of the most talented matriculates from full-time secondary schools and from the ranks of working population for certain types of further education of special significance to the national economy and culture, expensive tuition media and well defined requirements for highly qualified personnel. This would be based on a central planning, enrollment and employment system regarding graduates. The second stream would comprise the remaining educational directions with more changeable course oriented preferentials of the students, shorter tuition cycles and lower unit costs of educational outlays. This stream would expand or contract in accordance with the short-term fluctuations in demand, based on medium-term planning and financing conducted and predominantly through the regional agencies of higher education. It is intended to gain through the postu-

lated change first: a replacement of the present "roundabout communication": school - world of work, which takes place with the intermediary of indirect channels at many levels of the central administration by a more direct sort of mutual links, preferably on the regional level, and secondly - the upgrading of the school autonomy in active handling the matters of setting up or closing down certain courses or adjusting the curricula as to facilitate the matching processes between the university and the environment such schools are serving;

c. Swift reaction to ever changing demand for further education requires: firstly - more exact, more direct ties between the employer and the higher school for a constant tuning of equivalence between the skill acquisition in terms of job description and teaching media, secondly - a broadening of the prerogatives of the academic school in making the choice of learning content and enrollment changes in case of the courses, that should not be controlled through central planning, thirdly - to award more important functions to the regional political and economic bodies in matching the supply and the demand of qualified personnel on a local basic.

d. The complexity of educational processes and the management of specialized personnel requires in many cases complex research regarding the entire educational aspect, above all at the contact points of institutions of higher learning and secondary vocational training. Such an approach seems necessary in face of substitution processes between the skills acquired in school and through the job performance.

e. Many problems in the sphere of planning the development

of higher education and of assessing the demands for specialists with higher education require in the future indepth research. Above all it is necessary:

- more accurately define the consequences of the scientific and technological change for the occupational composition and the educational attainment level of society in the future
- to deepen studies on the methodology of medium- and long-term planning regarding the demand for qualified manpower;
- to conduct research as to non-professional needs of the population in various age-groups for education;
- studies of the effectiveness of education and above all its consequences for the development of the future national economy and culture.

Presenting this essay - out of necessity in very concise form - we are convinced that it may become the subject of discussions, assisting the choice of rational development options of higher education in the future. This might specifically contribute to further thinking on the improvement of the school system and the outlines of its long-range model.

Footnotes

[1] Report submitted by the specially appointed Working Committtee in May 1973.

[2] We have in mind here the first enrollments for extramural studies during the early stage of the industrialization of the country, when the main purpose of adult professional education was to upgrade the level of qualifications of the executive and engineering staff, promoted to hold such posts despite the lack of the formal qualifications.

[3] Report prepared by the Committee of Research and Forecasts, "Poland 2000" - Polish Academy of Sciences.

[4] In 1975, some 30% of the economically active people worked in small-scale individual peasant farms. The proportion of individual farmers, holding higher education certificates accounted at that time to 1 per thousand. At the same time those employed with the academic qualifications amounted to 62 per thousand in the entire public sector, of which 44 per thousand in the socialized agriculture sector, including agro-technical services open for needs of peasant farms.

[5] In Polish statistical terminology the category of non-manual jobs includes the following posts: liberal professions /doctors, judges/, managerial, engineering and executive positions, requiring higher or secondary school education, creative and artistic activity, clerical jobs and administrative operatives.

[6] Detailed research on this subject was conducted in Poland by the following authors: M, Kabaj, M, Klimczak, R, Majduchowski, T. Obrębski and J. Tymowski.

7 W. Wolter - Theoretical and Methodological Problems of long-term forecasts of education in higher and vocational schools of the GDR, Institut für Hochschulbildung Berlin 1977.